WATER SUPPLY OUTLOOK FOR MONTANA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE,

and

MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

AS OF

FEB. 1, 1968

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 Federal Office Building, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U.S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OREG. 1966

WATER SUPPLY OUTLOOK FOR MONTANA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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MONTANA WATER SUPPLY OUTLOOK

February 1, 1968

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* * * * * * * * * * * * * * * * * * * * * * * * *
*                                               *
* The mountain snow pack varies from below av-  *
* erage to maximum of record for this date.     *
* Mountain soil moisture is generally favorable. *
* The current snow pack is denser than normal   *
* and will help maintain late season streamflow. *
*                                               *
* If the current mountain precipitation pattern *
* continues, streamflow will range from below   *
* average in the northwest to above average in  *
* central and southwestern Montana.             *
*                                               *
* * * * * * * * * * * * * * * * * * * * * * * * *
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Mountain snow pack in the Columbia River drainage tributaries in Montana is below average - except in the headwaters of the Clark Fork above Missoula where it is above average.

Moisture in the soil under the snow pack is generally below average in the Kootenai and Lower Clark Fork drainage and near average in the remainder of the Columbia drainage - except a little above average in the Clark Fork and Bitterroot River headwaters.

April-September streamflow is expected to be 80 to 85 percent average in the Flathead River drainage and in the Kootenai River and streams tributary to the Kootenai in Montana.

MONTANA WATER SUPPLY OUTLOOK

February 1, 1968

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* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                           *
*  The mountain snow pack varies from below av-             *
*  erage to maximum of record for this date.                *
*  Mountain soil moisture is generally favorable.           *
*  The current snow pack is deeper than normal              *
*  and will help maintain late season streamflow.           *
*                                                           *
*  If the current meteorological/climatic patterns          *
*  continue, streamflow will range from below               *
*  average in the northwest to above average in             *
*  central and southwestern Montana.                        *
*                                                           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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Mountain snow pack in the Columbia River drainage varies in Montana is below average - except in the headwaters of the Clark Fork above Missoula where it is above average.

Moisture in the soil under the snow pack is generally below average in the Kootenai and Lower Clark Fork drainage and near average in the remainder of the Columbia drainage - except a little above average in the Clark Fork and Bitterroot River headwaters.

April-September streamflow is expected to be 80 to 85 percent average in the Flathead River drainage and in the Kootenai River and streams tributary to the Kootenai in Montana.

The Upper Clark Fork runoff is expected to be 20 percent above average while the Blackfoot River is forecast a little above average. The Bitterroot River is forecast a little below average. These combine for a flow at the state line about 15 percent below the 1948-62 average.

East of the divide, snow pack is quite variable. In the Gallatin drainage snow courses are near maximum of record for this date and exceed the April 1 average. Along the divide, west of Helena, snow pack is about the fourth or fifth highest of record and a little below the April 1 average. Snow pack in the Jefferson River headwaters is about 10 percent less than last year and about 135 percent average. The Madison drainage is about 15 percent less than last year and 115 percent average. The Gallatin drainage is about 30 percent greater than a year ago and 160 percent average. The Yellowstone River headwaters have a present snow pack about 15 percent less than a year ago and slightly above the 1948-62 average.

Moisture in the soils under the snow pack is generally near to above average.

Streamflow is expected to be near average in the Jefferson River drainage except above average on some of the headwater streams. Flow in the Madison is forecast about 10 to 15 percent above average and the Gallatin 25 to 35 percent above average. These combine to produce 112 percent average runoff at the beginning of the Missouri River.

The Sun and Marias drainages are expected to flow 80 to 85 percent average during the April-September period. The Yellowstone River above Billings and tributary streams are expected to produce near average runoff.

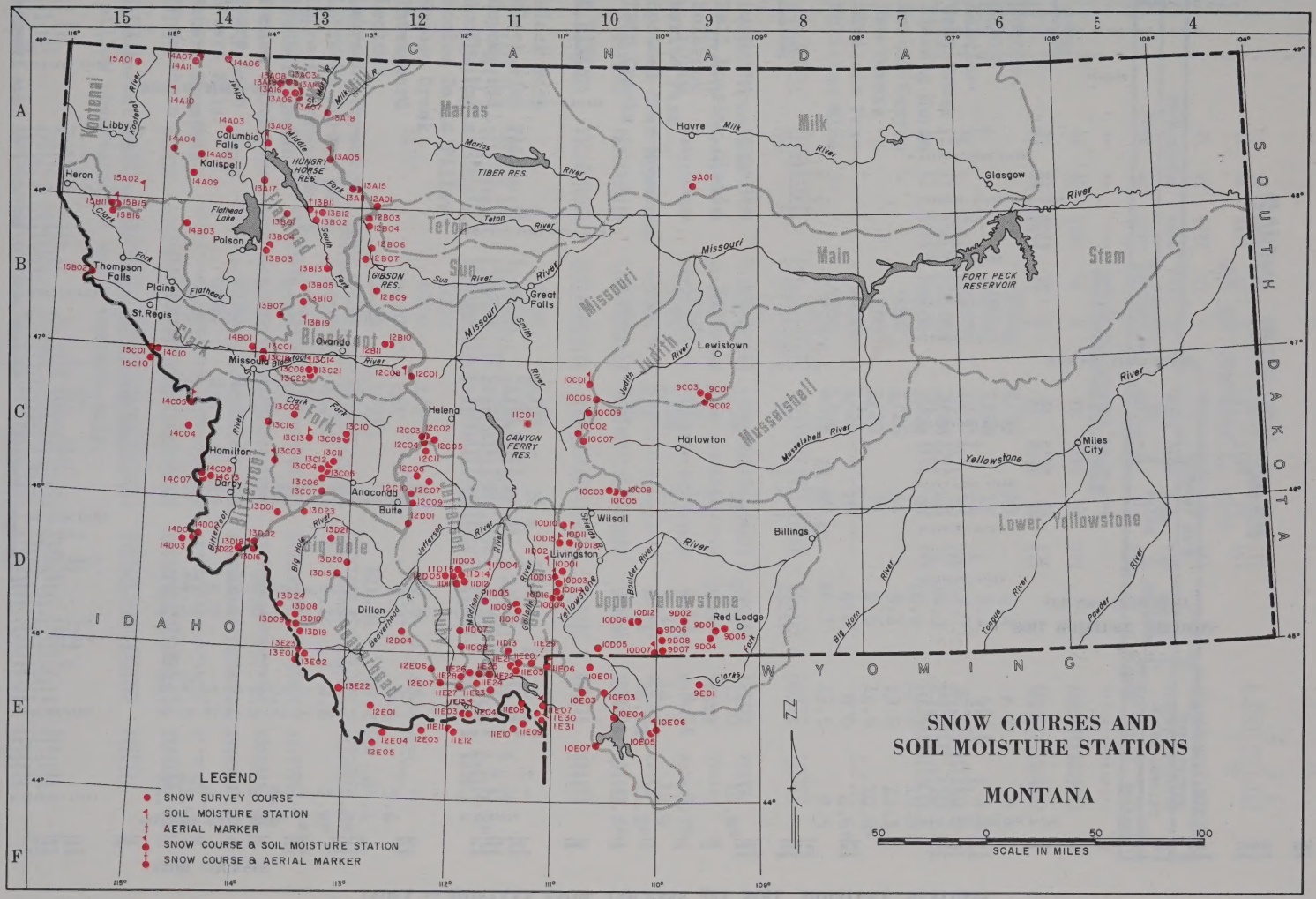
The Upper Clark Fork runoff is expected to be 20 percent above average while the Blackfoot River is forecast a little above average. The Bitterroot River is forecast a little below average. These combine for a flow at the state line about 15 percent below the 1942-62 average.

East of the divide, snow pack is quite variable. In the Smilkameen drainage snow courses are near maximum of record for this date and exceed the April 1 average. Along the divide, east of Helena, snow pack is about the fourth or fifth highest of record and a little below the April 1 average. Snow pack in the Jefferson River basin/water is about 10 percent less than last year and about 135 percent average. The Madison drainage is about 15 percent less than last year and 115 percent average. The Gallatin drainage is about 30 percent greater than a year ago and 160 percent average. The Yellowstone River basin/water has a present snow pack about 15 percent less than a year ago and slightly above the 1948-62 average.

Moisture in the soils under the snow pack is generally near to above average.

Streamflow is expected to be near average in the Jefferson River drainage except above average on some of the headwater streams. Flow in the Madison is forecast about 10 to 15 percent above average and the Gallatin 25 to 35 percent above average. These combine to produce 115 percent average runoff at the beginning of the Missouri River.

The Sun and Marias drainages are expected to flow 80 to 85 percent average during the April-September period. The Yellowstone River above Billings and tributary streams are expected to produce near average runoff.


SNOW COURSES AND
SOIL MOISTURE STATIONS
MONTANA
LEGEND
SNOW SURVEY COURSE
SOIL MOISTURE STATION
AERIAL MARKER
SNOW COURSE & SOIL MOISTURE STATION
SNOW COURSE & AERIAL MARKER
SCALE IN MILES
CANADA
IDAHO
WYOMING
SOUTH DAKOTA
Libby
Kalispell
Columbia Falls
Polson
Thompson Falls
Plains
St. Regis
Missoula
Hamilton
Darby
Anaconda
Butte
Helena
Great Falls
Havre
Glasgow
Lewistown
Harlowton
Wilsall
Livingston
Billings
Miles City
Dillon
Red Lodge
Heron
Ovando
Marias
Milk
Main
Stem
Teton
Sun
Missouri
Judith
Musselshell
Lower Yellowstone
Upper Yellowstone
Big Hole
Bitterroot
Clark Fork
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Flathead Lake
TIBER RES.
GIBSON RES.
CANYON FERRY RES.
FORT PECK RESERVOIR

INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

COLUMBIA RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. by 2/
KOOTENAI RIVER								
Bares Creek	15B11	5500	36	26N	31W	1956	3,4,5,5½	2
Bares Midway	15B16	4600	31	26N	30W	1965	3,4,5,5½	2
Bares Trail	15B15	3800	5	25N	30W	1965	3,4,5,5½	2
Brush Creek	14A04	5000	12	30N	26W	1937	3,4,5	1,2
Graves Creek	14A11	4300	1	36N	29W	1965	3,4,5,5½,6	1,2
Red Mountain	14A01	6000	4	36N	29W	1937	3,4,5,5½,6	1,2
Weasel Divide	14A07	5450	20	37N	24W	1937	3,4,5,5½,6	1,2
FLATHEAD RIVER								
Bassoo Peak	14B03	5150	11	24N	25W	1961	3,4,5	1,5
Beaver Lake	13A11	5900	31	28N	11W	1964	3,4,5	2
Big Creek	13B03	6750	7	23N	18W	1941	3,4,5, 6	1,5
Camp Misery	13A17	6400	30	28N	18W	1962	3,4,5,	1,2
Desert Mountain	13A02	5600	24	31N	19W	1937	1,2,3,4,5, 6	1,2
Fatty Creek	13B04	5500	8	22N	18W	1962	3,4,5, 6	1,5
Flattop Mountain	13A19	6300	12	35N	18W	1968	1,2,3,4,5, 6	1,6
Griffin Creek Divide	14A09	5150	11	28N	25W	1960	3,4,5	1,5
Gunsight Lake	13B12	6300	35	26N	14W	1964	3,4,5	1
Hell Roaring Divide	14A03	5770	35	32N	22W	1942	1,2,3,4,5,5½,6	2
Holbrook	13B13	4530	18	21N	13W	1951	1,2,3,4,5	1,2
Kishenehn	14A06	3890	14	37N	22W	1954	3,4	6
Logan Creek	14A05	4300	34	30N	24W	1937	3,4,5	1,2
Marias Pass	13A05	5250	34	30N	14W	1934	1,2,3,4,5	3
Mineral Creek	13A16	4000	29	35N	17W	1957	3,4,5	6
North Fork Jocko	13B07	6330	3	17N	17W	1941	3,4,5,5½,6	1,5
Spotted Bear Mountain	13B02	7000	23	25N	15W	1948	1,2,3,4,5	1
Trinkus Lake	13B01	6100	9	25N	17W	1948	3,4,5	1
Twin Creeks	13B11	3580	24	26N	16W	1951	1,2,3,4,5	1
Upper Holland Lake	13B05	7000	28	20N	15W	1948	3,4,5	1
CLARK FORK RIVER								
Black Pine	13C13	7100	26	8N	15W	1959	1,2,3,4,5,5½,6	1
Copper Creek	12B10	5700	1	15N	5W	1962	3,4,5	1,2
Cotter Mine	12B11	6250	2	15N	5W	1962	3,4,5	1,2
Coyote Hill	13B10	4200	12	18N	16W	1947	1,2,3,4,5	1,2
El Dorado Mine	13C09	7800	23	8N	12W	1949	3,4	1
Fred Burr Pass	13C11	8000	12	6N	13W	1957	3,4,5	8
Gold Creek Lake	13C10	7200	14	8N	12W	1949	3,4	1
Heart Lake Trail	14C10	4800	11	14N	27W	1965	3,4,5	1,2
Hoodoo Basin	15C10	6000	17	14N	27W	1967	1,2,3,4,5,5½,6	1,2
Hoodoo Creek	15C01	5900	16	14N	27W	1937	1,2,3,4,5	1,2
Intergaard	13C04	6450	6	5N	13W	1936	2,3,4,5	4
Lubrecht Forest No. 3	13C21	5450	19	13N	14W	1951	1,2,3,4,5	8
Lubrecht Forest No. 4	13C22	4650	23	13N	15W	1951	1,2,3,4,5	8
Lubrecht Forest No. 6	13C08	4040	11	13N	15W	1951	1,2,3,4,5	8
Red Lion	13C12	7100	22	6N	13W	1958	3,4,5	1
Skalkaho Summit	13C03	7260	30	6N	17W	1937	3,4,5,5½,6	1
Slide Rock Mountain	13C02	7100	35	10N	16W	1937	3,4,5	1
Southern Cross	13C05	6500	8	5N	13W	1936	2,3,4	4
Spring Gulch	13C18	6000	12	14N	14W	1961	1,2,3,4,5	8
Storm Lake	13C07	7780	19	4N	13W	1939	1,2,3,4,5	1
Stuart Mill	13C06	6500	19	5N	13W	1936	2,3,4	4
Stuart Mountain	13C01	7400	6	4N	18W	1936	1,2,3,4,5,5½,6	8
TV Mountain	14B01	6800	33	15N	19W	1956	1,2,3,4,5,5½,6	8
BITTERROOT RIVER								
Ambrose	13C16	6280	28	9N	18W	1960	3,4,5	1
East Fork R.S.	13D01	5400	16	2N	17W	1937	3,4	1
Gibbons Pass	13D02	7100	4	2S	19W	1934	1,2,3,4,5,5½,6	1,3
Lost Horse	14C07	5940	5	4N	23W	1960	3,4,5,5½,6	1
Nez Perce Camp	14D02	5680	19	1S	23W	1937	3,4,5	1
Nez Perce Pass	14D01	6970	25	1S	24W	1937	3,4,5	1
Saddle Mountain	13D22	7940	5	2S	19W	1965	3,4,5,5½,6	1
Twelvemile Creek	14C13	5600	34	5N	23W	1968	1,2,3,4,5,5½,6	1
Twin Lakes	14C08	6510	32	5N	23W	1960	3,4,5,5½,6	1
ST. MARY RIVER BASIN								
Hudson Bay Divide	13A18	5800	24	34N	14W	1963	3,4,5	3
Iceberg Lake No. 3	13A03	5600	1	35N	17W	1922	5	3,9
Josephine Lower No. 9	13A14	4900	22	35N	16W	1955	5	3,9
Mount Allen No. 7	13A07	5700	27	35N	16W	1922	5	3,9
Piegan Pass No. 6	13A06	5500	27	35N	16W	1922	5	3,9
Ptarmigan No. 8	13A08	5800	36	36N	17W	1937	5	3,9

MISSOURI RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. by 2/
BEAVERHEAD RIVER								
Bloody Dick	13D10	7600	12	8S	16W	1948	3,4,5	1
Carter Creek	12D04	7400	22	8S	7W	1963	2,3,4	1
Red Creek Lake	13E22	8400	24	12S	13W	1965	3,4,5	1
Elk Horn Springs	13D17	7800	21	4S	12W	1935	3,4,5	3
Gold Stone	13D09	8100	11	8S	16W	1948	3,4,5	1
Lakeview Canyon	11E04	6930	26	14S	2W	1948	3,4,5	10
Lakeview Ridge	11E03	7400	27	14S	2W	1948	3,4,5	10
Lemhi Pass	13E01	7480	9	10S	15W	1948	3,4	1
Lemhi Ridge	13E23	8100	4	10S	15W	1967	3,4	1
Trail Creek	13E02	7090	15	10S	15W	1948	3,4	1
White Pine Ridge	12E01	8850	18	14S	9W	1948	3,4,5	1
RUBY RIVER								
Branham Lakes	11D14	8850	5	4S	3W	1967	3,4,5	1,12
Clover Meadow	11D08	8600	28	9S	2W	1963	3,4,5	1
Divide	12E07	7900	14	12S	4W	1963	3,4,5	1
Middle Mill Creek	11D15	7850	17	4S	3W	1967	3,4,5	1,12
Notch	12E06	8500	18	11S	4W	1963	3,4,5	1
Smuggler Mine	12D05	6960	24	4S	3W	1967	3,4,5	1,12
BIG HOLE RIVER								
Abundance Lake	13D20	8800	7	3S	11W	1963	3,4,5	1
Darkhorse Lake	13D19	8600	4	8S	16W	1963	3,4,5	1
Foolhen	13D21	8280	11	1S	13W	1963	3,4,5	1
Jahnke Creek	13D08	7340	25	7S	16W	1948	3,4,5	1
Pettibone Creek	13D23	8450	3	2N	15W	1967	3,4,5	1
Slag-a-melt Lake	13D24	8750	29	5S	17W	1968	3,4,5	1
JEFFERSON RIVER								
Berry Meadow	12C07	7300	8	5N	5W	1962	3,4,5	1
Copper Mountain	12C09	7700	13	3N	7W	1966	2,3,4,5	4
Nez Perce Creek	12C10	6500	16	4N	6W	1967	2,3,4,5	4
Picnic Grounds	12C06	6500	21	5N	6W	1941	2,3,4	4
Pipestone Pass	12C01	7200	10	1N	7W	1938	1,2,3,4,5	1
Rocker Peak	12C11	8000	17	7N	5W	1968	1,2,3,4,5	1
MADISON RIVER								
Call Road	11D07	8050	21	8S	2W	1962	3,4,5	1
Four Mile	11D12	6900	5	4S	2W	1965	3,4,5	1
Freezeout Lake	11E25	7200	6	12S	1E	1965	3,4,5,5½,6	2
Freezeout Mountain	11E26	8250	26	11S	1W	1965	3,4,5,5½,6	2
Hebgen Dam	11E05	6550	22	11S	3E	1934	1,2,3,4,5	3
Jack Creek	11D05	7500	13	6S	1E	1961	3,4	1
Lake Creek	11E22	6100	27	11S	1E	1965	3,4,5,5½,6	2
Lion Mountain	11E28	8760	23	11S	2W	1967	1,2,3,4,5,5½,6	2
Lower Twin	11D11	7900	12	4S	3W	1965	3,4,5	1
Madison Plateau	11E31	7750	28	14S	5E	1968	1,2,3,4,5,5½,6	1,2
Meridian Creek	11E23	7000	31	12S	1E	1965	3,4,5,5½,6	2
North Meadow	11D03	7500	24	3S	3W	1961	3,4,5	1
Potomageton Park	11E21	7150	33	10S	3E	1965	3,4,5	2
Sentinel Creek	11E20	8300	17	10S	3E	1965	3,4,5	2
Tepee Creek	11E24	8000	15	12S	1W	1965	3,4,5,5½,6	2
Upper West Fork	11E27	8750	6	12S	2W	1966	3,4,5,5½,6	2
West Yellowstone	11E07	6700	34	13S	5E	1934	1,2,3,4,5	1,3,6
Whiskey Creek	11E30	6800	19	14S	5E	1967	3,4,5	2
GALLATIN RIVER								
Arch Falls	10D14	7350	3	5S	6E	1963	1,2,3,4,5,5½,6	1
Bear Basin	11D09	8150	9	6S	3E	1963	3,4,5	1
Bridger Bowl	10D15	7250	25	1N	6E	1965	1,2,3,4,5,5½,6	1
Carrot Basin	11E29	9000	18	10S	4E	1967	1,2,3,4,5, 6	2
Devil's Slide	10D04	8100	14	5S	6E	1935	1,2,3,4,5,5½,6	1
Hood Meadow	10D03	6000	22	4S	6E	1935	2,3,4,5,5½,6	1
Lick Creek	10D13	6860	10	4S	6E	1964	1,2,3,4,5,5½,6	1
Little Park	11D10	7400	22	6S	3E	1963	3,4,5	1
Maynard Creek	10D18	6210	19	1N	7E	1967	1,2,3,4,5,5½,6	1
New World	10D01	6700	24	3S	6E	1939	2,3,4	4
Shower Falls	10D16	8100	14	5S	6E	1966	1,2,3,4,5,5½,6	1
Taylor Peaks	11D13	8500	26	9S	2E	1967	3,4,5	1
Twenty-One Mile	11E06	7150	1	11S	5E	1934	1,2,3,4,5	3
MISSOURI RIVER MAIN STEM								
Boulder Mountain	11C01	7950	1	9N	3E	1963	3,4,5	1
Chessman Reservoir	12C05	6200	2	8N	5W	1936	1,2,3,4,5	3
Deadman Creek	10C09	6450	23	12N	8E	1966	3,4,5,5½,6	1
Elk Peak	10C07	8000	10	8N	8E	1963	3,4,5	1
Grasshopper	10C02	7000	19	9N	8E	1938	3,4,5	1
Kings Hill	10C01	7500	34	13N	8E	1934	3,4,5,5½,6	1,3
Rocky Boy	9A01	5200	15	26N	16E	1941	3,4	7
Stemple Pass	12C01	6600	16	13N	7W	1934	3,4,5	3
Ten Mile Lower	12C02	6600	12	8N	6W	1935	1,2,3,4,5	3
Ten Mile Middle	12C03	6800	13	8N	6W	1934	1,2,3,4,5	3
Ten Mile Upper	12C04	8000	19	8N	5W	1935	1,2,3,4,5	3
SUN-TETON-MARIAS RIVERS								
Badger Pass	13A15	6900	4	27N	11W	1964	3,4,5	2
Cabin Creek	12B06	5200	33	23N	10W	1949	3,4,5	2
Five-Bull	12B09	5700	25	20N	10W	1948	3,4,5	1
Freight Creek	12A01	6000	13	26N	10W	1948	3,4,5	1
Goat Mountain	12B07	7000	32	22N	10W	1934	3,4,5	3
Wrong Creek	12B04	5700	32	25N	10W	1949	3,4,5	2
Wrong Ridge	12B03	6800	17	25N	10W	1949	3,4,5	2
JUDITH RIVER								
Avalanche	9C02	7100	24	12N	17E	1966	3,4,5	1
Crystal Lake	9C01	6100	19	12N	18E	1941	3,4,5	1
Rock Creek	9C03	5600	8	12N	18E	1966	3,4,5	1
Spur Park	10C06	8000	20	12N	9E	1963	1,2,3,4,5, 6	1
UPPER YELLOWSTONE RIVER								
Bald Ridge	10C05	7500	11	4N	13E	1961	3,4,5	1
Camp Senia	9D01	7890	2	6S	18E	1937	3,4,5,5½,6	1
Cooke Station	9D07	8150	19	9S	15E	1966	3,4,5	2
Crevice Mountain	10D05	8400	22	9S	9E	1935	3,4	2
Fisher Creek	9D06	9100	11	9S	1E	1966	1,2,3,4,5,5½,6	1,2
Grizzly Peak	9D05	8400	26	7S	13E	1961	1,2,3,4,5	1,2
Independence	10D06	8000	22	7S	12E	1940	3,4,5	1
Monument Peak	10D12	9000	22	7S	12E	1961	3,4,5	1
Northeast Entrance	10D07	7400	33	9S	12E	1937	1,2,3,4,5,5½,6	1,6
Porcupine R.S.	10C03	6500	10	4N	10E	1938	3,4,5	1
Sacajawea	10D10	6550	36	2N	6E	1960	3,4,5	1
South Fork Shields	10C08	8100	13	4N	10E	1966	3,4,5	1
Timberline Creek	9D04	8850	10	8S	18E	1961	3,4,5	1
West Rosebud	9D02	7500	9	7S	16E	1960	3,4	4
White Mill	9D08	8700	18	9S	15E	1967	3,4,5	2

SOIL MOISTURE STATIONS

COLUMBIA RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. by 2/
KOOTENAI RIVER								
Bares Trail	15B15M	3800	5	25N	30W	1964	Monthly	2
Murphy Lake R.S.	14A10M	3000	5	34N	25W	1964	Monthly	2
Raven R.S.	15A02M	3050	2	26N	29W	1964	Monthly	2
FLATHEAD RIVER								
Desert Mountain	13A02M	5600	24	31N	19W	1956	Monthly	1
Marias Pass	13A05M	5250	34	30N	14W	1950	Monthly	1
CLARK FORK RIVER								
Black Pine	13C13M	7100	26	8N	15W	1965	Monthly	1
Lubrecht Forest	13C14M	4100	11	13N	15W	1961	Monthly	8
Seeley Lake	13B19M	4030	21	17N	15W	1963	Monthly	2
Skalkaho Summit	13C03M	7260	30	6N	17W	1964	Monthly	1
BITTERROOT RIVER								
Gibbons Pass	13D18M	7100	4	2S	19W	1962	Monthly	1
Lolo Pass	14C05M	5250	11	10N	24W	1963	Monthly	1

MISSOURI RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. by 2/
BEAVERHEAD RIVER								
Lakeview	11E13M	6700	23	14S	2W	1962	Monthly	10
MADISON RIVER								
Red Bluff	11D04M	4800	7	3S	1E	1961	Monthly	7
West Yellowstone	11E07M	6700	34	13S	5W	1966	Monthly	6
GALLATIN RIVER								
Bridger Bowl	10D15M	7250	25	1N	6E	1965	Monthly	1
College Site	11D02M	4856	18	2S	5E	1956	Monthly	1
Lick Creek	10D13M	6860	10	4S	6E	1965	Monthly	1
Twenty-One Mile	11E06M	7150	1	11S	5E	1963	Monthly	6
MISSOURI RIVER MAIN STEM								
Kings Hill	10C01M	7420	34	13N	8E	1963	Monthly	1
Stemple Pass	12C08M	6350	16	13N	7W	1963	Monthly	1
YELLOWSTONE RIVER								
Battle Ridge	10D11M	6020	32	2N	7E	1960	Monthly	1
Northeast Entrance	10D07M	7350	33	9S	12E	1962	Monthly	6

LEGEND

1/ Numerals 1,2,3,4,5,5½,6 refer to January 1, February 1, March 1, April 1, May 1, May 15 and June 1.

2/ Numerals refer to Agency that makes the snow survey as follows:

1. U. S. Soil Conservation Service
2. U. S. Forest Service
3. U. S. Geological Survey
4. Montana Power Company
5. U. S. Indian Service
6. U. S. National Park Service
7. MSU Agricultural Experiment Station
8. U. of M. School of Forestry
9. Department of Energy, Mines & Resources
10. U. S. Bureau of Sport Fisheries & Wildlife
11. Private Cooperator
12. Soil and Water Conservation District

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT LAST YEAR	WATER CONTENT AVERAGE
	COLUMBIA RIVER BASIN						
OTENAI RIVER							
10	Fernie	3500	1/29	23	4.2	6.8	7.3
12A	Field	4200	1/28	17	5.3	6.6	5.1
11	Glacier	4100	1/30	62	19.7	32.6	19.6
43	Gray Creek	5100	1/28	40	10.3	13.5	12.6*
33	Kicking Horse	5400	1/28	39	10.6	15.1	10.8
32	Marble Canyon	5000	1/26	35	8.1	13.0	11.1
10A	New Fernie	4100	1/29	39	8.6	14.9	10.8*
8A	Sinclair Pass	4500	1/26	16	4.0	6.6	4.6*
20A	Sullivan Mine	5100	1/29	40	10.7	13.6	9.5
ATHEAD RIVER							
3A02	Desert Mountain	5600	1/31	35	10.2	15.0	10.8*
A03	Hell Roaring Divide	5770	2/1	60	18.3	34.9	-
3B13	Holbrook	4530	2/2	22	6.0A	8.7A	7.7*
3A05	Marias Pass	5250	1/29	27	9.3	14.3	12.9
3B02	Spotted Bear Mountain	7000	2/2	28	9.0A	14.0A	11.2*
3B11	Twin Creeks	3580	2/2	24	7.0A	11.0A	9.8*
ARK FORK RIVER							
3C13	Black Pine	7100	1/31	36	10.9	10.4	-
3C13	Black Pine Pillow	7100	1/31	SP	11.0	10.8	-
3B10	Coyote Hill	4200	2/1	27	6.8	9.4	7.8*
C10	Hoodoo Basin	6000	2/1	94	31.3	38.1	-
5C10	Hoodoo Basin Pillow	6000				37.1	-
5C01	Hoodoo Creek	5900	2/1	86	27.6	35.4	-
3C04	Intergaard	6450	2/1	26	7.2	6.4	5.4
5B02	Lookout	5250	1/31	70	21.0	29.2	26.4
3C21	Lubrecht Forest No. 3	5450	2/4	25	5.4	5.2	5.8*
3C22	Lubrecht Forest No. 4	4650	2/4	13	3.1	2.8	2.9*
3C08	Lubrecht Forest No. 6	4040	2/4	12	3.2	3.4	3.6*
3C05	Southern Cross	6500	2/1	22	5.7	5.2	4.3
3C18	Spring Gulch	6000	2/3	37	10.6	8.6	8.8*
3C07	Storm Lake	7780	1/31	40	12.4	9.4	8.9*
3C06	Stuart Mill	6500	2/1	23	5.7	5.2	4.4
3C01	Stuart Mountain	7400	2/3	69	24.3	22.8	21.9*
4B01	TV Mountain	6800	2/2	38	11.4	12.9	11.7*

A - Aerial observation - water content estimated.
P - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1965

No.	Snow Course Name	Elevation	Water Content Data: Water Content	Water Content Data: Percent Average	Water Content Data: Water Content Last Year	Water Content Data: Percent Last Year
	COLUMBIA RIVER BASIN					
	EFFERAL RIVER					
10	Vernia	3000	1/29	21	4.2	6.3
10A	Fisher	3200	1/28	17	7.3	6.3
11	Glacier	4100	1/31	65	19.7	30.4
13	Grass Creek	4100	1/29	0	10.3	1.3
33	Kinsley Ranch	4100	1/28	39	10.6	25.3
32	Marble Lagoon	3000	1/28	35	9.1	23.0
10A	New Vernia	4100	1/29	39	9.6	12.9
8A	Sinclair Pass	4200	1/26	16	4.4	6.6
20A	Sullivan Mine	3100	1/29	40	10.7	13.0
	KATEAD RIVER					
402	Desert Mountain	5000	1/31	32	10.9	13.0
403	Hall Spring Divide	4700	2/1	65	14.7	[illegible]
413	Holbrook	4150	2/5	22	8.04	7.04
405	Marian Pass	4250	1/30	37	9.3	11.1
402	Spotted Bear Mountain	3100	2/2	59	9.04	14.04
411	Twin Creek	3500	2/2	[illegible]	7.04	12.04
	NORTH FORK RIVER					
413	Black Pine	7100	1/30	15	10.0	10.4
413	Black Pine Willow	7100	1/31	8	12.7	12.3
410	Coyote Hill	6200	1/2	37	6.8	7.4
410	Hoodoo Basin	6400	1/31	41	[illegible]	18.2
410	Hoodoo Basin Pillow	6400				17.1
411	Hoodoo Creek	5400	2/1	35	17.5	19.4
404	Isabegard	4400	2/2	26	9.2	1.2
402	Lookout	4200	1/30	70	23.7	29.4
421	Lubrecht Forest No. 3	3400	2/4	[illegible]	3.4	3.2
422	Lubrecht Forest No. 4	4400	2/4	1	3.1	2.8
424	Lubrecht Forest No. 6	4100	2/4	2	3.4	4.4
409	Southern Cross	6500	2/1	22	5.7	4.2
418	Spring Gulch	6000	2/1	27	10.6	8.6
407	Stone Lake	7700	2/1	40	12.4	5.4
406	Stuart Mill	6800	2/1	2	2.7	5.4
401	Stuart Mountain	7400	2/1	69	24.1	22.8
401	TV Mountain	6800	2/2	16	1.4	14.3

- Aerial measurement - water content estimated.
- Snow pillow measurement - water content only.

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
ITTERROOT RIVER							
3D02	Gibbons Pass	7100	1/29	47	14.8	17.6	15.7*
4C07	Lost Horse	5940	1/30	55	19.5	-	-
3D16	Moose Creek	6200	1/29	36	9.0	12.1	11.4*
3D22	Saddle Mountain	7940	1/29	59	18.8	-	-
3D22	Saddle Mountain Pillow	7900	1/29	SP	17.6	-	-
4C04	Savage Pass	6600	1/29	54	13.6	20.2	-
4C13	Twelvemile Creek	5600	1/30	40	13.9	-	-
4C13	Twelvemile Creek Pillow	5600	1/30	SP	10.7	-	-
4C08	Twin Lakes	6510	1/30	77	27.6	-	-
4C12	Twin Lakes Pillow	6400	1/30	SP	23.8	-	-

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1965

Snow course			Survey date	Snow depth	Water content	Last year	Last year % average
No.	Name	Elevation					
TUOLUMNE RIVER							
5C02	Gibbons Pass	7200	1/29	47	12.8	37.6	15.7*
5C07	Lost Horse	5940	1/30	32	13.5	-	-
5D16	Moose Creek	6800	1/29	36	9.0	32.1	11.4*
5D22	Saddle Mountain	7940	1/29	57	12.8	-	-
5D22	Saddle Mountain Pillow	7900	1/29	52	17.5	-	-
5C04	Savage Pass	6600	1/29	34	13.6	39.2	-
5C13	Tuolumne Creek	5800	1/30	40	13.0	-	-
5C13	Tuolumne Creek Pillow	5600	1/30	32	10.7	-	-
5C09	Twin Lakes	8910	1/30	77	27.6	-	-
5C12	Twin Lakes Pillow	8400	1/30	52	23.8	-	-

* - Snow pillow observation - water content only.

All articles must be identified in the text material. "Unknown source"

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
	MISSOURI RIVER BASIN						
BEAVERHEAD RIVER							
.2E03	Camp Creek	6800	1/29	38	8.0	8.7	6.5
.2D04	Carter Creek	7400	1/28	17	3.4	3.4	-
.1E12	Kilgore	6200	1/31	34	8.5	8.4	6.4
.1E04	Lakeview Canyon	6930	2/1	45	10.1	12.8	-
.1E03	Lakeview Ridge	7400	Report Delayed			11.8	-
JEFFERSON RIVER							
.2C09	Copper Mountain	7700	1/31	39	10.6	8.4	-
.2C10	Nez Perce Creek	6500	1/31	22	5.1	5.0	-
.2C06	Picnic Grounds	6500	2/1	19	3.9	3.6	3.3
.2D01	Pipestone Pass	7200	2/1	19	4.3	4.3	3.3*
.2C11	Rocker Peak	8000	2/1	45	13.9	-	-
.2C11	Rocker Peak Pillow	8000	2/1	SP	13.2	-	-
MADISON RIVER							
.1E09	Big Springs	6500	1/29	55	12.1	19.5	13.7
.1E05	Hebgen Dam	6550	1/27	46	10.2	10.1	8.1
.1E10	Island Park	6315	1/29	46	8.9	15.8	10.8
.0E02	Norris Basin	7500	1/31	44	10.9	10.5	6.9*
.1E08	Valley View	6500	1/29	54	13.6	18.2	9.6
.1E07	West Yellowstone	6700	1/28	40	7.7	11.5	7.8
.1E07	West Yellowstone Pillow	6700	1/30	SP	6.6	9.3	-
GALLATIN RIVER							
.0D14	Arch Falls	7350	1/31	44	13.6	8.8	7.3*
.0D15	Bridger Bowl Pillow	7250	1/30	SP	20.9	20.3	-
.1E29	Carrot Basin Pillow	9000	1/23	SP	16.5	25.4	-
.0D04	Devil's Slide	8100	1/31	70	22.7	15.2	12.7*
.0D03	Hood Meadow	6600	1/31	35	10.6	7.4	5.5*
.0D13	Lick Creek Pillow	6860	1/31	SP	9.6	6.6	-
.0D18	Maynard Creek Pillow	6210	1/30	SP	11.2	8.5	-
.0D01	New World	6700	1/30	36	12.0	8.7	6.6
.0D16	Shower Falls Pillow	8100	1/31	SP	22.2	16.2	-
.1E06	Twenty-One Mile	7150	1/28	52	13.2	16.6	12.1

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1950

No.	Name	Elev. in feet	Snow course length in miles	Date of survey	Snow depth in inches	Water content in inches	Last year (1949) Water content in inches	Average
	MISSOURI RIVER BASIN							
	SAVAGE(AD) RIVER							
2E03	Deep Creek	6800	1/29	28	8.0	8.7	6.5	
2E04	Center Creek	7400	1/28	17	1.1	3.1	-	
2E12	Kizzore	6200	2/1	24	8.5	8.4	6.4	
2E04	Lakeview Canyon	6830	2/1	43	10.1	12.8	-	
2E05	Lakeview Ridge	7400	Report Delayed			11.8	-	
	JEFFERSON RIVER							
2C09	Copper Mountain	7700	1/31	30	10.5	8.4	-	
2C10	Bear Porte Creek	6500	1/31	22	3.1	6.0	-	
2C06	Pionia Gravels	6500	2/1	19	1.0	3.6	3.3	
2C02	Pipestone Pass	7200	2/1	35	4.5	4.3	3.7	
2C11	Rocker Peak	8000	2/1	45	13.0	-	-	
2C12	Rocker Peak Pillow	8000	2/1	22	12.2	-	-	
	MADISON RIVER							
2C09	Big Springs	6400	1/29	32	12.1	10.5	12.7	
2C05	Hebgen Dam	6350	1/27	44	10.2	10.1	8.1	
2C10	Island Park	6415	1/29	65	8.7	12.6	10.8	
2C02	Norris Basin	7300	2/1	44	10.9	10.3	6.9*	
2C08	Valley View	7200	1/29	54	15.8	12.2	9.4	
2C07	West Yellowstone	6700	1/28	40	7.7	11.2	7.8	
2C07	West Yellowstone Pillow	6700	1/30	27	6.6	7.1	-	
	GALLATIN RIVER							
2C14	Arch Falls	7350	1/31	44	13.6	8.4	7.3*	
2C15	Bridger Bowl Pillow	7350	1/30	38	20.9	20.3	-	
2C17	Carrot Basin Pillow	7700	1/31	29	16.5	24.4	-	
2C04	Doville Gulch	6100	1/31	70	23.7	12.2	12.7*	
2C03	Hood Meadow	6600	1/31	35	10.6	7.4	5.3*	
2C13	Lick Creek Pillow	6860	1/31	28	9.6	6.5	-	
2C16	Maynard Creek Pillow	6210	1/30	29	11.3	6.3	-	
2C01	New World	6700	1/30	6	12.0	8.7	6.6	
2C16	Shower Falls Pillow	8100	1/31	27	22.8	12.2	-	
2C06	Twenty-One Mile	7130	1/28	32	17.2	16.6	12.1	

* - Snow pillow observation - water content only.

Ill: All snowfall data on file with the Weather Bureau, Washington, D.C.

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT LAST YEAR	WATER CONTENT AVERAGE
ISSOURI RIVER (Main Stem)							
.2C05	Chessman Reservoir	6200	1/30	19	6.4	3.0	3.1
.0C09	Deadman Creek	6450	1/29	34	9.2	10.4	-
.0C09	Deadman Creek Pillow	6450	1/29	SP	8.2	-	-
9A01	Rocky Boy	4700	1/29	16	4.9	-	-
9A01	Rocky Boy Pillow	4700	1/29	SP	5.3	-	-
.2C02	Ten Mile Lower	6600	1/30	25	7.5	6.0	4.9
.2C03	Ten Mile Middle	6800	1/29	32	9.4	8.4	7.3
.2C04	Ten Mile Upper	8000	1/29	41	13.0	10.3	9.1
UDITH RIVER							
.0C06	Spur Park	8000	1/29	55	18.2	20.2	-
.0C06	Spur Park Pillow	8000	1/29	SP	17.0	18.7	-
ASKATCHEWAN (BOW RIVER)							
.1b. 1	Bow River	5100	1/30	26	6.6	10.3	-
.1b. 8	Chateau Lake	5700	1/30	32	7.6	11.2	-
.1b. 5	Lake Louise	5800				12.4	-
.1b. 6	Mirror Lake	6600	1/30	33	8.8	13.7	-
.1b. 10	Mount Eisenhower	5000	1/30	15	3.6	4.9	-
.1b. 2	Upper Pipestone	5400	1/29	24	6.0	11.0	-
PPER YELLOWSTONE RIVER							
.OE03	Canyon	7750	1/30	47	10.8	13.5	9.4
OE06	East Entrance	7000	2/1	29	4.5	7.0	7.9*
9D05	Grizzly Peak	8400	1/29	45	13.4	11.4	7.1*
.OE04	Lake Camp	7850	1/31	31	5.0	8.3	6.5*
9E01	Lodgepole	8200	2/1	32	7.5	8.8	6.6*
.OE01	Lupine Creek	7300	1/30	48	8.4	10.1	7.3
.OD07	Northeast Entrance	7400	1/30	29	6.4	8.6	5.8
.OD07	Northeast Entrance Pillow	7400	1/30	SP	6.8	8.1	-
.OE05	Sylvan Pass	7100	2/1	37	7.6	10.0	9.3*
.OE07	Thumb Divide	7900	2/3	63	14.8	14.1	14.4*
9D02	West Rosebud	7500				10.8	-

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1959

Key	Snow Course		Date of Survey	Depth	Water Content	Water Content	Water Content	Water Content	Water Content	Water Content
	River	Elevation		Inches	Inches	Percent	Inches	Percent	Inches	Percent
	TUOLUMNE RIVER (Main Stem)									
2005	Cheesman Reservoir	6700	1/29	19	6.4	3.0				
2009	Dearborn Creek	6450	1/29	34	9.2	10.4				
2009	Dearborn Creek Pillow	6450	1/29	39	8.2	-				
2101	Rocky Bay	4200	1/29	16	4.4	-				
2101	Rocky Bay Pillow	4200	1/29	18	3.3	-				
2002	Ten Mile Lower	6500	1/29	25	7.5	6.0				
2003	Ten Mile Middle	6500	1/29	32	9.4	8.4				
2004	Ten Mile Upper	8000	1/29	41	13.0	10.3				
	YUBA RIVER									
2006	Squr Park	8000	1/29	55	18.2	20.2				
2006	Squr Park Pillow	8000	1/29	58	17.0	18.7				
	SACRAMENTO (ST. RIVER)									
Sb. 1	Bow River	5100	1/30	25	6.6	10.1				
Sb. 8	Chateau Lake	5700	1/30	32	7.6	11.2				
Sb. 5	Lake Levels	5800				12.4				
Sb. 6	Mirror Lake	6100	1/30	33	8.8	13.7				
Sb. 10	Moses Eisenhower	5050	1/30	15	3.6	4.9				
Sb. 2	Upper Pinestone	5100	1/29	24	6.0	11.0				
	SIERRA VELLOWSTONE RIVER									
2003	Canyon	7750	1/30	47	10.8	12.5				
2006	East Entrance	7800	2/1	29	4.5	7.0				
2005	Grizzly Peak	8100	1/29	45	13.4	11.4				
2001	Lake Camp	7250	1/31	31	5.0	8.3				
2001	Lodgepole	8200	2/1	32	7.5	8.8				
2001	Lupine Creek	7300	1/30	48	8.4	10.1				
2007	Northeast Entrance	7100	1/30	27	6.4	9.6				
2007	Northeast Entrance Pillow	7100	1/30	28	6.8	8.1				
2003	Sylvan Pass	7100	2/1	27	7.6	10.0				
2007	Thumb Divide	7900	2/3	63	14.8	14.1				
2002	West Roaring	7500				10.8				

* - Snow pillow observation - water content only.

NOTE: All averages based on long-term (10 year period). "Normal" is average.

SOIL MOISTURE DATA

AS OF FEBRUARY 1, 1968

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE
			COLUMBIA RIVER BASIN					
Kootenai								
15B15M	Baree Trail	3800	48	7.5				-
14A10M	Murphy Lake R.S.	3000	48	22.6	2/1	19.1	20.1	-
15A02M	Raven R.S.	3050	48	23.0	2/5	20.6	22.2	-
Flathead								
13A02M	Desert Mountain	5600	54	8.4	1/31	6.9	7.9	7.0
13A05M	Marias Pass	5250	54	6.5	2/1	5.4	5.2	5.0
Clark Fork								
13C13M	Black Pine	7100	48	10.0	1/31	8.0	7.9	-
13B19M	Seeley Lake R.S.	4030	48	11.9	2/1	5.1	10.0	7.3
13C03M	Skalkaho Summit	7260	48	10.8				-
Bitterroot								
13D18M	Gibbons Pass	7100	48	7.1	1/29	6.2	4.8	4.9
14C05M	Lolo Pass	5250	48	10.6	2/1	10.1	3.7	5.7
			MISSOURI RIVER BASIN					
Beaverhead								
11E13M	Lakeview	6700	48	15.3	2/1	5.2	6.6	7.5
Madison								
10D04M	Red Bluff	4800	40	4.7	2/1	2.5	2.0	2.1
11E07M	West Yellowstone	6700	48	6.5	1/30	2.3	2.6	-
Gallatin								
10D15M	Bridger Bowl	7250	48	17.0	1/30	15.5	16.0	-
11D02M	College Site	4856	54	14.5	2/2	10.3	13.3	9.7
10D13M	Lick Creek	6860	48	18.8	1/31	17.8	18.1	-
11E06M	Twenty-One Mile	7150	48	10.0	1/30	3.2	2.6	2.8
Missouri Main Stem								
10C01M	Kings Hill	7420	48	11.8	1/29	6.3	4.9	7.3
13C08M	Stemple Pass	6350	48	5.9	1/31	4.3	3.8	4.1
Yellowstone								
10D11M	Battle Ridge	6020	48	17.6	1/29	14.6	11.5	12.5
10D07M	Northeast Entrance	7350	48	9.4	1/30	5.6	4.8	6.8

**AVERAGE FOR PERIOD OF RECORD

SOIL MOISTURE DATA

AS OF FEBRUARY 1, 1964

SOIL MOISTURE STATION			SOIL PROFILE			MOISTURE DATA			RAIN PER MONTH	
No.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	WILTING PERCENTAGE	SOIL MOISTURE	LAST YEAR	** AVERAGE
COLUMBIA RIVER BASIN								
Coastal								
1SB19M	Seven Trail	2830	48	7.5				-
1AA10M	Murphy Lake R.S.	2000	42	22.6	2/1	19.1	20.1	-
1SA02M	Raven R.S.	3000	48	23.0	2/5	20.6	22.2	-
Foothill								
1JA02M	Dessert Mountain	5000	54	8.4	1/21	6.9	7.9	7.0
1JA03M	Marias Pass	5250	54	6.5	2/1	5.4	5.2	5.0
Park Fork								
1BC13M	Black Pine	7100	48	20.0	1/21	8.0	7.9	-
1BH19M	Seeley Lake R.S.	4030	48	11.9	2/1	5.1	10.0	7.3
1BC02M	Skalkaho Summit	7250	48	10.8				-
Bitterroot								
1BD13M	Gibbons Pass	7100	48	7.1	1/29	6.2	4.9	-
1AC02M	Lolo Pass	5250	48	10.6	2/1	10.1	3.7	5.7
MISSOURI RIVER BASIN								
Yellowstone								
1MI13M	Lakeview	6700	48	23.3	2/1	5.2	6.6	7.5
Madison								
1CC04M	Red Tail	4800	40	6.7	2/1	2.5	2.0	2.5
1ED07M	West Yellowstone	6700	48	6.5	1/30	2.3	2.6	-
Gallatin								
1DD15M	Bridger Bowl	7250	48	17.0	1/30	13.4	16.0	-
1DD02M	Gallatin Gate	4950	54	5.4	2/1	10.3	13.3	9.7
1ED13M	Lick Creek	6800	48	32.8	1/31	17.8	18.1	-
1ED04M	Tweedy-One Mile	7150	48	10.0	1/30	3.2	2.6	2.8
Upper Main Stem								
1CC01M	Elkorn Hill	7250	48	11.8	1/29	6.3	4.9	7.3
1CC08M	Stemple Pass	6350	48	8.9	1/31	4.3	3.8	4.1
Yellowstone								
1DD11M	Battle Ridge	6000	48	17.6	1/29	24.6	11.5	12.5
1DC07M	Northeast Entrance	7350	48	9.4	1/30	5.0	4.0	6.8

** AVERAGE FOR PERIOD OF RECORD

RESERVOIR STORAGE DATA

AS OF JANUARY 31, 1968

(1000 Acre Feet)

BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVERAGE
OLUMBIA RIVER BASIN					
Lathead	Hungry Horse	3,428.0	2,034.0	1,825.0	2,693.4**
	Flathead Lake	1,791.0	1,272.0	1,374.0	1,042.9
	Camas (Sum of 4)	45.2	22.4	23.7	30.4
	Mission Valley (Sum of 8)	100.3	24.2	24.6	31.9
Lark Fork	Georgetown Lake	31.0	28.7	21.5	24.5
	Noxon Rapids	334.6	325.7	-	-
ltterroot	Como	34.9	14.4	7.6	10.8
	Painted Rocks	31.7	21.8	14.8	14.0**
ISSOURI RIVER BASIN					
averhead	Clark Canyon	328.9	156.7	101.8	-
	Lima	84.0	42.1	14.0	26.0
iby	Ruby	38.8		-	18.4**
idison	Hebgen Lake	377.5	237.0	169.2	180.4
	Ennis Lake	41.0	34.6	39.7	36.8
illatin	Middle Creek	8.0	3.3	2.6	3.3**
issouri	Canyon Ferry	2,043.0	1,709.0	1,307.0	1,553.9**
	Hauser & Helena	61.9	59.0	63.6	51.6
	Lake Helena	10.4	9.4	11.1	7.2
	Holter Lake	81.9	73.4	81.0	59.6
	Smith River	10.7	8.1	3.1	5.2**
	Ackley Lake	5.8		-	3.6
	Durand	7.0	4.6	3.1	3.9**
	Martinsdale	23.1	9.8	7.7	8.4**
	Deadman's Basin	72.2	60.4	37.6	39.5**
	Fort Peck	19,410.0	16,100.0	15,590.0	10,575.1
	Gibson	105.0	32.1	19.6	55.7
	Willow Creek	32.3	16.6	15.9	19.2
	Pishkun	32.0	16.7	16.1	18.7
irias	Lower Two Medicine			-	0.0
	Four Horns	19.2		11.8	10.4
	Swift	30.0	9.5	-	19.9
	Lake Frances	112.0	70.8	71.0	91.7
	Tiber	1,347.0	461.2	488.6	628.0**
lk	Fresno	127.2	66.8	84.0	59.4
	Nelson	66.8	41.0	51.0	36.7
	Lake Sherburne	66.1	24.6	16.9	18.4
llowstone	Mystic Lake	20.8	13.5	10.6	10.6
	Tongue River	68.0		30.2	11.2
	Cooney	27.5	15.0	16.2	10.8**
g Horn	Yellowtail	1,356.0	800.6	636.6	-

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). **AVERAGE FOR PERIOD OF RECORD

RESERVOIR STORAGE DATA

AS OF JANUARY 31, 1964

(000 acre-feet)

BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE — THIS YEAR	USEABLE STORAGE — LAST YEAR	USEABLE STORAGE — AVERAGE
COLUMBIA RIVER BASIN					
Flathead	Hungry Horse	3,452.0	2,234.0	1,823.0	2,693.4**
	Flathead Lake	1,791.0	1,272.0	1,274.0	1,042.0
	Swan (20% of 4)	43.2	22.4	23.7	30.4
	Hidalgo Valley (2 ms of 8)	100.3	24.2	24.6	31.9
Clark Fork	Georgetown Lake	31.0	24.7	21.5	24.5
	Noxon Rapids	354.6	245.7	-	-
Clearwater	Dworshak	3,450.0	1,707.0	1,377.0	1,753.3**
	Cascade	34.9	14.4	7.6	10.8
	Palisades	91.7	21.8	34.8	14.0**
SNAKE RIVER BASIN					
Henrys Fork	Island Park	127.0	56.7	101.5	-
	Ashton	84.0	42.1	14.0	25.0
	Grassy	34.8		-	18.4**
Teton	Teton	277.5	237.0	169.2	190.4
	Grassy Lake	41.0	34.6	34.7	34.4
Big Lost	Mackay	8.0	3.3	3.6	3.1**
Snake	Jackson	1,060.0	1,707.0	1,307.0	1,331.3**
	Palisades	1,400.0	1,707.0	1,307.0	1,331.3**
	Ririe	29.0	29.0	29.0	29.0
	Blackfoot	41.9	39.0	42.6	51.6
	Grays	10.4	9.4	11.1	7.2
	Palisades	1,400.0	1,707.0	1,307.0	1,331.3**
	Henrys Lake	83.5	73.4	81.0	39.6
	Island Park	127.0	56.7	101.5	-
	Ashton	84.0	42.1	14.0	25.0
	Grassy	34.8		-	18.4**
	Teton	277.5	237.0	169.2	190.4
	Grassy Lake	41.0	34.6	34.7	34.4
	Middle Creek	8.0	3.3	3.6	3.1**

Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service
Region 1, Missoula, Montana
Montana Forests and Ranger Districts

U. S. Geological Survey
Helena, Montana
Portland, Oregon

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Walla Walla, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana
Portland, Oregon
Kansas City, Missouri

U. S. Bureau of Sports Fisheries and Wildlife
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

U. S. Bonneville Power Administration
Portland, Oregon

U. S. Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

U. S. National Park Service
Yellowstone National Park
Glacier National Park

Montana Power Company
Butte, Montana

Montana Water Resources Board
Helena, Montana

North Montana Branch Station
Agricultural Experiment Station
Havre, Montana

Montana State University
Agricultural Experiment Station
Bozeman, Montana

University of Montana
School of Forestry
Missoula, Montana

Water Rights Branch, Dept. of Lands and Forests
Victoria, British Columbia

Department of Energy, Mines and Resources
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